STATUS AND TRENDS PROPOSAL WORKSHOP #4
Analytical Products and Status Reports

Natural Resources Building, Room 172,
Olympia, WA

I. Attendees:

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17   Smith, Carol (Conservation Commission) 360-790-7330; bioforsalmon@comcast.net
18   Wagner, Paul (KWA/Colville Tribes) 509-430-0005; pwagner@kwaecoscience.com
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II. Workshop Expectations & Agenda Review

A. Carol will talk about
    1. Combining disparate data sets for Limiting Factors Analysis (LFA)
    2. Incorporating the LFA for the State of the Salmon Report
B. Our thinking at this point:
    1. evaluate indicators based on comparisons within Ecoregions (natural regions,) then
    2. report by management region (WRIA, SRR, State).
        a. Riparian
        b. In-stream
        c. channel morph
        d. substrate/sediment
        e. etc.
C. Upcoming ...
    1. This is the final workshop
    2. Next "meetings" (not workshops)
        a. before draft is done – Govt-Govt meeting with tribes
        (Randy McIntosh asked to be kept in the loop regarding the tribal discussions)
        b. pre-draft review discussion
    3. Draft due end of March
    4. Final due end of May
    5. Chad has begun and outline – we'll be including Kirk and Carol soon

III. Presentation: Carol Smith – Some Background on the Limiting Factors Analyses

    A. State of Salmon Report (http://tinyurl.com/9yu7s) 1998-2003
        1. This was a 1x deal and limited to non-federal lands.
            – future reports will need to come from status and trend monitoring
        2. Participants.
            - GSRO
            - WDFW – contributed barriers information
            - WDOE – contributed water quality information
            - IAC
            - NWIFC
            - Conservation Commission – contributed habitat ratings based on LFAs
        3. Purpose –
            - to inform public and politicians about...
              "How we are doing with salmon restoration funds?"
            - requires using simple (non-technical) terms
    B. "Limiting Factors"
        1. What does it mean?
            - a misnomer because these are not quantitative
            - Defined by Salmon Recovery Act (ESHB2496 http://tinyurl.com/b2xfv)
              as "Conditions that limit the ability of habitat to fully sustain
              populations of salmon."
        2. Purpose
            - give technical basis for decisions about funding projects
            - allow lead entities to develop strategies based on needs
            - aid development of "Regional Recovery Plans"

        3. Process
            – used local information from monthly meetings
                 summarized issues
                 prioritized issues
            - reporting categories for "State of Salmon Report" (SoS)
                1) habitat access (barriers - much from WDFW data)
                2) habitat quality-rolled up to a single score/WRIA for the SoS
                   based on....
                    b) <u>floodplain</u> (wetlands, side-channels)
                    c) <u>riparian</u>
                    d) <u>sediment</u> (quantity, quality, stability, road density)
                    e) <u>in-stream habitat</u>(LWD, pool habitat)
                3) water quality (WDOE data)
                4) flow (WDOE data)
                5) Estuarine/near shore
            - setting reporting benchmarks ("standards")- a painful but important step
                1) poor, fair, good, and data gap (DG)
                2) mostly based on qualitative information
                    a) best professional judgment was often needed
                    b) Re-visiting these standards is recommended.
                3) some based on watershed analyses (WA Forest Practices).
                4) distinguished where possible
                    a) East vs. West
                    b) High vs. Low-gradient

IV. Workshop Open Discussion

A. Site selection and design
    1. First answer this set of questions:
        a. What are the monitoring questions?
        b. Who will use it?
        c. What decisions will be made?
        d. Who contributes to this?
    2. Augment rather than replace existing monitoring as much as possible
    3. Monitor 2 ways
        a. broad-scale status and trend monitoring
            Tells what is broken/fixed and where.
            Provides context for local monitoring.
        b. local-scale monitoring
            Answers why is it broken/fixed
            Might require additional variables and sites: ensure design can accommodate.
            Requires broad-scale monitoring to provide context
    4. Use information from early years to refine design in later years
        a. predict where problems will be
        b. predict what the problems will be
        c. drop indicators that have not been useful.

B. Core variables to consider
    1. Those applicable to issues/actions common to many localities.
        a. refer to input requested at these workshops
        b. refer to recovery plans
    2. Indicators should be relevant in time.
        a. focus on things that change in < 10 years
        b. don't forget episodic/sporadic changes
    3. Indicators should include drivers
        a. habitat
            Upland Processes
              -roads (remote sensing)
              -connectivity
            Riparian condition
              -canopy cover
              -vegetation
              -seral stage (from 30 m Landsat)
              -buffer width
            Floodplain
              -lateral connectivity
              -bank stability/hardening/rip-rap/levies
              -confinement
            Connectivity
              -lateral (floodplain)
              -up/down (barriers – natural and man-made)
            Instream
              -LWD (field and remote sensed)
              -width: depth
              -embeddedness
              -sediments
              -pools
              -gradient
            Flow
            -impervious surfaces
            -range (low-high)–USGS model to predict peak flows between stations

b. water quality
                        1. Water Quality Index (WQI) - to identify problems
                        2. Components of WQI – to diagnose problems
                                a. Temperature (with diurnal range estimates)
                                b. Dissolved Oxygen (with diurnal range estimates)
                                c. pH (with diurnal range estimates)
                                d. Total Suspended Solids
                                e. Total Nitrogen
                                f. Total Phosphorus
                                g. Turbidity
                                h. Fecal coliform can be omitted
                                        i. Expensive
                                       ii. applies more to human health than habitat
                        3. benthic macroinvertebrate community
        4. Minimize the length of core indicator list
            a. easier training
            b. easier to include non-professionals
            c. locals can add variables for local assessments as they see fit
        5. Consider remotely sensed data
            a. might allow some measuring where/when we cannot field-visit
            b. needs to be tested

C. Evaluating/scoring sites.
    1. seek common scoring procedures with others in NW
            a. PNAMP
            b. AREMP
    2. base standards on biological responses
            a. score based on species and life stages that are using a given stream.
            b. describe confidence (or lack) in thresholds
            c. represent the full range of natural conditions – not just the average.
    3. Base evaluations on ecoregions or natural provinces
    (then report at the WRIA, SRR, or statewide scales). Options are…
            a. Ecoregions (EPA)- Level 3 and combinations
                http://www.epa.gov/wed/pages/ecoregions/level_iii.htm
                 Mountains
                        Coast Range
                        Puget Lowland
                        Willamette Valley
                        Cascades
                        Eastern Cascades Slopes and Foothills
                        North Cascades
                        Northern Rockies
                        Blue Mountains
                 Xeric
                        Columbia Plateau
            b. Bailey's Ecological Provinces (USFS)
                http://www.fs.fed.us/colorimagemap/ecoreg1_provinces.html
                 Humid Temperate Domain
                        Marine Lowlands (240)
                        Marine Mountain (M240)
                 Dry Domain
                        Temperate Desert (340)
                        Temperate Steppe (330)
                        Temperate Steppe Mountains (M330)
            c. Aquatic Provinces (FEMAT and AREMP)
                http://www.fs.fed.us/pnw/publications/pnw_gtr647/
                 Olympic Peninsula

          North Cascades
          Willamette/Puget Trough
          West Cascades
          Washington/Oregon Coast Range
          High Cascades

D. Frame for site selection
1. Use predetermined monitoring questions (objectives) to define the frame.
2. Minimum of 50 sites/reporting area, plus
    a. ensure you have enough reference sites/ecoregion.
    b. ensure enough sites to represent disturbed conditions in each ecoregion.
3. Don't limit monitoring to salmon-bearing waters
    a. demonstrate condition of salmon as a response to upstream/up-network conditions.
    b. include headwaters (where most habitat forming processes occur)
    c. it might be important to include irrigation canals
        i. canals shown to be important in California Fish & Game studies.
        ii. canals might provide *refugia*
    d. Waters above Grand Coulee Dam affect salmon waters downstream